

CHASSIS **MODEL**
HS-303 **72XM21**

CHASSIS TOP

CHASSIS BOTTOM

TEST POINTS:

- 1. 117V AC-DC INPUT
- 2. 117V AC
- 3. 117V AC
- 4. 117V AC
- 5. 117V AC
- 6. 117V AC
- 7. 117V AC
- 8. 117V AC
- 9. 117V AC
- 10. 117V AC
- 11. 117V AC
- 12. 117V AC
- 13. 117V AC
- 14. 117V AC
- 15. 117V AC
- 16. 117V AC
- 17. 117V AC
- 18. 117V AC
- 19. 117V AC
- 20. 117V AC
- 21. 117V AC
- 22. 117V AC
- 23. 117V AC
- 24. 117V AC
- 25. 117V AC
- 26. 117V AC
- 27. 117V AC
- 28. 117V AC
- 29. 117V AC
- 30. 117V AC
- 31. 117V AC
- 32. 117V AC
- 33. 117V AC
- 34. 117V AC
- 35. 117V AC
- 36. 117V AC
- 37. 117V AC
- 38. 117V AC
- 39. 117V AC
- 40. 117V AC
- 41. 117V AC
- 42. 117V AC
- 43. 117V AC
- 44. 117V AC
- 45. 117V AC
- 46. 117V AC
- 47. 117V AC
- 48. 117V AC
- 49. 117V AC
- 50. 117V AC
- 51. 117V AC
- 52. 117V AC
- 53. 117V AC
- 54. 117V AC
- 55. 117V AC
- 56. 117V AC
- 57. 117V AC
- 58. 117V AC
- 59. 117V AC
- 60. 117V AC
- 61. 117V AC
- 62. 117V AC
- 63. 117V AC
- 64. 117V AC
- 65. 117V AC
- 66. 117V AC
- 67. 117V AC
- 68. 117V AC
- 69. 117V AC
- 70. 117V AC
- 71. 117V AC
- 72. 117V AC
- 73. 117V AC
- 74. 117V AC
- 75. 117V AC
- 76. 117V AC
- 77. 117V AC
- 78. 117V AC
- 79. 117V AC
- 80. 117V AC
- 81. 117V AC
- 82. 117V AC
- 83. 117V AC
- 84. 117V AC
- 85. 117V AC
- 86. 117V AC
- 87. 117V AC
- 88. 117V AC
- 89. 117V AC
- 90. 117V AC
- 91. 117V AC
- 92. 117V AC
- 93. 117V AC
- 94. 117V AC
- 95. 117V AC
- 96. 117V AC
- 97. 117V AC
- 98. 117V AC
- 99. 117V AC
- 100. 117V AC

COMPONENTS:

- V-1 12BA6
- V-2 12BA7
- V-3 12BA6
- V-4 12BA6
- V-5 19T8
- V-6 50C5
- V-7 12BA6
- V-8 12BA6
- V-9 12BA6
- V-10 12BA6
- V-11 12BA6
- V-12 12BA6
- V-13 12BA6
- V-14 12BA6
- V-15 12BA6
- V-16 12BA6
- V-17 12BA6
- V-18 12BA6
- V-19 12BA6
- V-20 12BA6
- V-21 12BA6
- V-22 12BA6
- V-23 12BA6
- V-24 12BA6
- V-25 12BA6
- V-26 12BA6
- V-27 12BA6
- V-28 12BA6
- V-29 12BA6
- V-30 12BA6
- V-31 12BA6
- V-32 12BA6
- V-33 12BA6
- V-34 12BA6
- V-35 12BA6
- V-36 12BA6
- V-37 12BA6
- V-38 12BA6
- V-39 12BA6
- V-40 12BA6
- V-41 12BA6
- V-42 12BA6
- V-43 12BA6
- V-44 12BA6
- V-45 12BA6
- V-46 12BA6
- V-47 12BA6
- V-48 12BA6
- V-49 12BA6
- V-50 12BA6
- V-51 12BA6
- V-52 12BA6
- V-53 12BA6
- V-54 12BA6
- V-55 12BA6
- V-56 12BA6
- V-57 12BA6
- V-58 12BA6
- V-59 12BA6
- V-60 12BA6
- V-61 12BA6
- V-62 12BA6
- V-63 12BA6
- V-64 12BA6
- V-65 12BA6
- V-66 12BA6
- V-67 12BA6
- V-68 12BA6
- V-69 12BA6
- V-70 12BA6
- V-71 12BA6
- V-72 12BA6
- V-73 12BA6
- V-74 12BA6
- V-75 12BA6
- V-76 12BA6
- V-77 12BA6
- V-78 12BA6
- V-79 12BA6
- V-80 12BA6
- V-81 12BA6
- V-82 12BA6
- V-83 12BA6
- V-84 12BA6
- V-85 12BA6
- V-86 12BA6
- V-87 12BA6
- V-88 12BA6
- V-89 12BA6
- V-90 12BA6
- V-91 12BA6
- V-92 12BA6
- V-93 12BA6
- V-94 12BA6
- V-95 12BA6
- V-96 12BA6
- V-97 12BA6
- V-98 12BA6
- V-99 12BA6
- V-100 12BA6

TEST POINTS:

- 1. 117V AC-DC INPUT
- 2. 117V AC
- 3. 117V AC
- 4. 117V AC
- 5. 117V AC
- 6. 117V AC
- 7. 117V AC
- 8. 117V AC
- 9. 117V AC
- 10. 117V AC
- 11. 117V AC
- 12. 117V AC
- 13. 117V AC
- 14. 117V AC
- 15. 117V AC
- 16. 117V AC
- 17. 117V AC
- 18. 117V AC
- 19. 117V AC
- 20. 117V AC
- 21. 117V AC
- 22. 117V AC
- 23. 117V AC
- 24. 117V AC
- 25. 117V AC
- 26. 117V AC
- 27. 117V AC
- 28. 117V AC
- 29. 117V AC
- 30. 117V AC
- 31. 117V AC
- 32. 117V AC
- 33. 117V AC
- 34. 117V AC
- 35. 117V AC
- 36. 117V AC
- 37. 117V AC
- 38. 117V AC
- 39. 117V AC
- 40. 117V AC
- 41. 117V AC
- 42. 117V AC
- 43. 117V AC
- 44. 117V AC
- 45. 117V AC
- 46. 117V AC
- 47. 117V AC
- 48. 117V AC
- 49. 117V AC
- 50. 117V AC
- 51. 117V AC
- 52. 117V AC
- 53. 117V AC
- 54. 117V AC
- 55. 117V AC
- 56. 117V AC
- 57. 117V AC
- 58. 117V AC
- 59. 117V AC
- 60. 117V AC
- 61. 117V AC
- 62. 117V AC
- 63. 117V AC
- 64. 117V AC
- 65. 117V AC
- 66. 117V AC
- 67. 117V AC
- 68. 117V AC
- 69. 117V AC
- 70. 117V AC
- 71. 117V AC
- 72. 117V AC
- 73. 117V AC
- 74.

MOTOROLA Chassis HS-303, Model 72XM21, continued from preceding page.

BROADCAST BAND - IF & RF ALIGNMENT

Connect the AM signal generator as in chart below, with 400 cycle, 30% modulation.

Connect the output meter across the speaker voice coil. Throughout alignment reduce the genera-

tor output to a level which produces less than .40 volts across the voice coil, to avoid overloading the receiver.

Set the bandswitch to the AM position.

Turn the receiver volume control to maximum.

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	GANG SETTING	ADJUST	REMARKS
IF ALIGNMENT						
1.	.1 mf	Grid of conv. V-2 (pin 7, 12BA7)	455 Kc	Fully opened	1, 2, 3 & 4 (IF cores)	Adjust for maximum.
RF ALIGNMENT						
2.	.1 mf	Grid of conv. V-2 (pin 7, 12BA7)	1620 Kc	Fully opened	5 (BC osc)	Adjust for maximum.*
3.		Across radiation loop**	1400 Kc	Tune in signal	8 (BC ant)	Adjust for maximum.

4. If, after the receiver has been aligned as above, it is found to be badly off calibration, it will be necessary to adjust oscillator core (7) as follows: connect the generator to the grid of the converter tube and, with the gang fully closed, adjust core (7) at 535 Kc. It is advisable to repeat the oscillator adjustments at 1620 Kc and 535 Kc several times until the tuning range is correct. Core (7) has been pre-set at the factory and normally should require no retuning.

* If difficulty is encountered in tuning trimmer (5), adjust trimmer (6) to ½ turn from tight.

**Connect generator output across 5" diameter, 5 turn loop and couple inductively to receiver loop. Keep loops at least 12" apart.

FM BAND - IF & RF ALIGNMENT

Connect the signal generator as in chart below, with no modulation.

Set the bandswitch to the FM position.

Except in step 2 below, connect the electronic voltmeter across resistor R-23 (15K) in the ratio detector stage.

Throughout alignment reduce the signal generator output to a value which produces no more than a 5 volt rise above no signal voltage, to avoid overloading the receiver.

In step 2 below, connect two 100K ohm resistors in series across R-23. Connect the electronic voltmeter between the volume control side of resistor R-24 (33K) and the junction of the two 100K resistors, with the low side of the meter at the 100K resistors.

STEP	DUMMY ANTENNA	GENERATOR CONNECTION	GENERATOR FREQUENCY	TUNER SETTING	ADJUST	REMARKS
IF ALIGNMENT						
1.	1000 mmf	Grid of conv. V-2 (pin 7, 12BA7)	10.7 Mc	Fully opened	9, 11, 12, 13 & 14 (IF cores)	Adjust for maximum.
2.	1000 mmf	Grid of conv. V-2 (pin 7, 12BA7)	10.7 Mc	Fully opened	10 (ratio det sec)	Adjust for zero. (Connect meter as in step 6 above).
RF ALIGNMENT						
3.	270 ohms	FM terminals on loop	87.5 Mc	Fully closed	15 (osc adj nut)	Adjust for maximum.
4.	-	-	-	Fully closed	16 (RF adj nut)	Turn counterclockwise until core is at bottom of pipe, then turn four turns clockwise.
5.	270 ohms	FM terminals on loop	90 Mc	Tune in signal	17 (RF tuning plug)	Adjust for maximum.
6.	270 ohms	FM terminals on loop	105 Mc	Tune in signal	16 (RF adj nut)	Adjust for maximum.
7.	-	-	-	-	-	Repeat steps 5 & 6 until no further adjustment is necessary.